

**Notice of Allowability**

Application No.

10/507,243

Examiner

Christopher Chan

Applicant(s)

COLAS ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/26/2007.
2. ☒ The allowed claim(s) is/are 2-10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application
- ☒ Interview Summary (PTO-413), Paper No./Mail Date 11/28/2007.
- ☒ Examiner's Amendment/Comment
- ☐ Examiner's Statement of Reasons for Allowance
- ☐ Other \_\_\_\_\_



JEFFREY PWU  
SUPERVISORY PATENT EXAMINER

**Examiner's Amendment**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

**THE SPECIFICATION IS AMENDED AS FOLLOWS:**

4<sup>th</sup> full paragraph, page 5, line 29 – page 8, line 33 is amended as follows:

Its subject is a method of selecting and sorting data packets made available to ~~device~~, by at least one packet data transmission network **[[with]] having** a packet format able to comply with three levels of protocols:

- a first level protocol corresponding to a network transmission physical layer, governing the general format of a packet and imposing the presence in a packet, on the one hand, of a so-called first level payload data field and, on the other hand, of so-called first level service information fields, including one so-called physical layer destination address, assigned to a first destination address and another assigned to a second level protocol identifier,
- a second level protocol governing the format of the first level payload data field and able to impose a partition of the first level payload data field into a so-called second level payload data field and into the so-called second level service information fields, of which one, the so-called second level destination address is assigned to a second destination address, and including one other assigned to a third level protocol identifier, as well as other possible fields controlling the fragmentation of the payload transported by the second level of protocol into one or more payloads transported by the possible third level protocol and

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- a possible third level protocol governing the format of the second level payload data field and able to impose a partition of the second level payload data field into a so-called third level payload data field and into service data fields some of which may exist only in the first of the fragments conveying the payload of the second level protocol.

This method includes the steps of:

- constructing a directory of so-called lower level addresses mustering, in the form of a list of elements, the various values taken by the addressing information appearing in the service information fields of the protocols of the first two levels when they relate to the device,
- constructing a directory of so-called higher level addresses mustering, in the form of a list of elements, the various values taken by the addressing information appearing in the service information fields of the protocols of levels higher than the second level when they relate to the device,
- establishing, for each element of the list of the directory of lower level addresses a compatibility link with one or more elements of the list of the directory of higher level addresses, this compatibility link signaling the possibility, in respect of two linked elements, of simultaneously being in the service information fields of ~~one~~ and the same packet,
- establishing for each element of the list of the directory of higher level addresses, an assignment link to at least one reception port of the device, and

for each packet made available to the device by the data transmission networks:

- reading the addressing information contained in the service information fields of the protocols of the first and second levels,
- searching for a match between the addressing information read from the service information fields of the protocols of the first and second levels and an element of the list of the directory of lower level addresses, in the absence of any matching element,
- rejecting the packet, in the presence of a matching element,

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- taking into consideration the compatibility link of the matching element so as to search through the list of elements of the higher levels addressing directory, for the compatible elements,
- reading the addressing information contained in the service information fields of the protocols of levels higher than the second,

when addressing information contained in the service information fields of the protocols of levels higher than the second are present,

- searching for a match between this information and one of the compatible elements of the list of the directory of higher level addresses,

in the absence of matching elements,

- rejecting the packet,

in the presence of a matching element,

- selecting the packet made available,
- taking into consideration the assignment link of the matching element,
- addressing the useful data of the packet to the reception ports of the device that are designated by the assignment link, and
- creating, if it does not already exist, an allocated message descriptor establishing a relation between the reception ports designated by the assignment link, the compatibility link and the value of a possible second level service information field assigned to a message fragment identification so as to make it possible to reconcile later, the incoming fragments not possessing any service information fields of the protocols of levels higher than the second,

when addressing information contained in the service information fields of the protocols of levels higher than the second are not present,

- searching through the open allocated message descriptors for a match at the level of the compatibility link and of the value of a possible second level service information field assigned to a message fragment identification,

in the absence of matching elements,

- rejecting the packet,

in the presence of a matching element,

- selecting the packet made available,
- taking into consideration the assignment link of the matching element,
- addressing the useful data of the packet to the reception ports of the device that are designated by the assignment link, and
- searching through the service information fields of the second level of the packet for an end of message information item making it possible to terminate the allocated message descriptor considered.

Page 11, lines 25-29 is amended as follows:

- a figure 1 is a diagram showing two installationsdevices intercommunicating by way of two distinct data transmission networks, one of the installationsdevices having its structure more detailed as to demonstrate the construction of its accessways to the networks,

Page 12, lines 18-24 is amended as follows:

In figure 1, two installationsdevices I, II indexed by 1, 2 are separated by a greater or lesser distance and intercommunicate across two distinct transmission networks Na, Nb indexed by 3, 4. Each installationdevice 1, 2 is provided with a main circuit 10 executing the fundamental tasks for which it was designed and with a network interface 11 controlling the accessways of the main circuit 10 of the installationdevice to the two transmission networks Na, Nb 3, 4.

Page 25, lines 1-12 is amended as follows:

When, as described, the installationsdevices 1, 2 can converse by way of two different transmission networks 3, 4, the identity of the network or channel from which the packet examined originates can easily be tagged at the level of the network interface 11 and can constitute a useful information item for the utilization of the packet. In this case, the expected value C of the channel identity for a packet, whose

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destination MAC address or whose combination of Destination MAC and Destination IP address correspond to the directory element 8 concerned, is systematically added to this element 8 in a specific information field 85, with a flag Xc placed in another specific information field 86 signaling whether the channel information item C figuring in the information field 85 of the directory element 8 does or does not have to be taken into consideration during a search for a match.

**THE CLAIMS ARE AMENDED:**

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Canceled).

2. **(Currently Amended)** The device as claimed in claim 10, wherein the searches for a match are made by the logic sorting means within the lists of the elements of the lower level and **[[of]]** higher level address directories by following a dichotomy procedure in previously ordered lists consisting of repeatedly subdividing in two parts the previously ordered lists until finding a matching element.

3. (Previously Presented) The device as claimed in claim 10, wherein the elements of the lower level address directory are stored in a first table, their addresses within this first table identifying the compatibility links associated with them.

4. **(Currently Amended)** The device as claimed in claim 10, wherein the elements of the directory of higher level address directory are stored within a second table, each of them being associated, within this second table with a compatibility link **[[90]]** and with an assignment link.

5. (Previously Presented) The device as claimed in claim 10, linked to Ethernet networks with packets respecting a first level protocol of MAC type and a second level protocol of IP type wherein each element of the lower level address directory holds at least one particular value of the MAC destination address field and one particular value of the IP destination address field.

6. (Previously Presented) The device as claimed in claim 10, linked to Ethernet networks with packets respecting a first level protocol of MAC type imposing, among the service fields of a packet, a field identifying the protocol respected by the packets at the second level and a second level protocol of IP type, wherein each element of the lower level address directory holds at least one particular value of the MAC destination address field, one particular value of the IP destination address field and a flag for invalidating the particular value of the IP destination address field in case of non-recognition of an IP type second level protocol.

7. (Previously Presented) The device as claimed in claim 10, linked to a duplicate network consisting of two independent Ethernet networks each having access to the device, each of the two Ethernet networks having packets respecting a first level protocol of MAC type and a second level protocol of IP type, and having means for identifying the network or networks of origin of a packet, wherein each element of the lower level directory holds at least one particular value of the MAC destination address field, one particular value of the IP destination address field, an identifier of the network or networks of origin of the packet compatible with these particular values of MAC and IP destination address field, and a validation flag for the identifier of the network or networks of origin of the packet.

8. (Previously Presented) The device as claimed in claim 10, linked to Ethernet networks with packets respecting a first level protocol of MAC type imposing, among the service fields of a packet, a field identifying the protocols respected by the packets at the second level, a second level protocol of IP type and a third level protocol belonging to a group of protocols containing the UDP and TCP protocols, wherein each element of the higher level directory holds at least one particular value of destination port UDP/TCP address field and a double flag for validating the particular value of destination port UDP/TCP address field identifying at the same time a third level protocol compatible with said particular value of destination port UDP/TCP address field.



9. (Previously Presented) The device as claimed in claim 10, linked to a duplicate network consisting of two independent Ethernet networks each having access to the device, each of the two Ethernet networks having packets respecting a first level protocol of MAC type, a second level protocol of IP type and a third level protocol belonging to a group of protocols containing the UDP and TCP protocols, and having means for identifying the network or networks of origin of the packet, wherein each element of the higher level directory holds at least one particular value of destination port UDP/TCP address field, a double flag for validating the particular value of destination port UDP/TCP address field identifying at the same time a third level protocol compatible with said particular value of destination port UDP/TCP address field, an identifier of the network or networks of origin of the packets that are compatible with this particular value of destination port UDP/TCP address field, and a validation flag for the identifier of the network or networks of origin of the packet.

10. (Currently Amended) A device linked to a data packet transmission network, the device comprising means for selecting and sorting data packets made available by at least one packet data transmission network having a packet format configured to comply with three levels of protocols, the three levels of protocols including:

- a first level protocol corresponding to a network transmission physical layer, the first level protocol imposing a general format of a packet including a first level payload-data field and first level service information fields, including a first physical layer destination address, assigned to a first destination address and a second physical layer destination address assigned to a second level protocol identifier,
- a second level protocol imposing the format of the first level payload-data field with a partitioning of the first level payload-data field into a second level payload-data field [(6a)] and second level service information fields, of which one is a second level destination address assigned to a second

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destination address, and another second level destination address is assigned to a third level protocol identifier, and

- a third level protocol imposing the format of the second level payload-data field with a partition of the second level payload-data field into a third level payload-data field and into third level service data fields,

said means for selecting and sorting data packets comprising:

- means for constructing a lower level address directory mustering, in a form of a list of elements, the various values taken by the addressing information appearing in the service information fields of the protocols of the first two levels when they relate to the device,
- means for constructing a higher address directory mustering, in the form of a list of elements, the various values taken by the addressing information appearing in the service information fields of the protocols of levels higher than the second level when they relate to the device,
- means for establishing compatibility links that link each element of the list of the lower address directory with one or more elements of the list of the higher level address directory, these compatibility links signaling the possibility, in respect of two linked elements, of simultaneously being in the service information fields of one and the same packet,
- means for establishing assignment links that link each element of the list of the higher level address directory with at least one reception port of the device, and
- logic means for sorting each packet made available to the device by the data transmission networks by:
  - reading the addressing information contained in the service information fields of the protocols of the first and second levels,
  - searching for a match between the addressing information read from the service information fields of the protocols of the first and second levels and an element of the list of the directory of lower level addresses,

in the absence of any matching element,

- rejecting the packet,

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in the presence of a matching element,

- taking into consideration the compatibility link of the first matching element so as to select from the list of elements the higher levels addressing directory, the compatible elements,
- reading the addressing information contained in the service information fields of the protocols of levels higher than the second,

when addressing information containing the service information fields of the protocols of levels higher than the second are present,

- searching for a match between this information and one of the compatible elements of the list of the directory of higher level addresses,

in the absence of matching elements,

- rejecting the packet,

in the presence of a matching element,

- selecting the packet made available,
- taking into consideration the assignment link of the matching element,
- addressing the payload data of the packet to the reception ports of the device that are designated by the assignment link, and
- creating, if it does not already exist, an allocated message descriptor establishing a relation between the reception ports designated by the assignment link, the compatibility link and the value of a possible second level service information field assigned to a message fragment identification so as to make it possible to reconcile later, the incoming fragments not possessing any destination address information in the service information fields of the protocols of levels higher than the second,

when addressing information contained in the service information fields of the protocols of levels higher than the second are not present,

- searching through the open allocated message descriptors for a match at the level of the compatibility link and of the value of a

- possible second level service information field assigned to a message fragment identification,
- in the absence of matching elements,
- rejecting the packet,
- in the presence of a matching element,
- selecting the packet made available,
  - taking into consideration the assignment link of the matching element,
  - addressing the payload data of the packet to the reception ports of the device that are designated by the assignment link, and
  - searching through the service information fields of the second level of the packet for an end of message information item making it possible to terminate the allocated message descriptor considered.